

NOTES AND ILLUSTRATIONS OF QUEENSLAND FISHES, No. 2.

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(Plates VIII—XI.)

THE specimens dealt with in the following pages were secured by Captain Hout during the trawling operations of the Queensland State trawler "Bar-er-mul." This vessel worked along the entire coast between the southern boundary of the State and Cairns, principally in the ship channels inside the Barrier Reef, but occasionally in the passages through the reef to its outer edge. Captain Hout found the area between Rockhampton and the Whitsunday Passage to be swarming with small fish of many kinds, but too small to be of commercial value. Even the Cato Bank in the Coral Sea, eastward of Rockhampton, was investigated, but, though the trawl was hauled successfully over the rough coral ground, fish were not secured in payable quantities, and the investigations were brought to an end early in 1921. Line fishing, on the other hand, produced an abundance of large edible fishes, and the ship was sometimes stocked up with supplies so obtained.

FAMILY SYNODONTIDÆ.

GENUS SYNODUS (Gronow) Bloch & Schneider.

The status and affinities of the new species here described may be expressed in the following key:—

- a. Scales larger, l. lat. 43-52.
 - b. Anal fin about as long as the dorsal, with 10-12 rays. *intermedius*, *evermanni*, *poeyi*,
and *dominicensis*.
 - bb. Anal fin longer than the dorsal, with 15 rays *sageneus*.
- aa. Scales smaller, l. lat. 58-68.
 - c. Anal fin with 8-10 rays.
 - d. Mouth extending little beyond the eye *simulans*.
 - dd. Mouth extending well beyond the eye.
 - e. $4\frac{1}{2}$ -5 scales between the lateral line and the dorsal fin.
 - f. L. lat. 58-61.
 - g. Indian and Pacific Ocean species.
 - h. Eye little wider than interorbital space, and scarcely more than half as long as the snout; body markings indefinite, fins plain *houtti*.
 - hh. Eye much wider than interorbital space, and more than half as long as the snout; body with distinct dark cross-bars, and fins with brown spots *japonicus*.

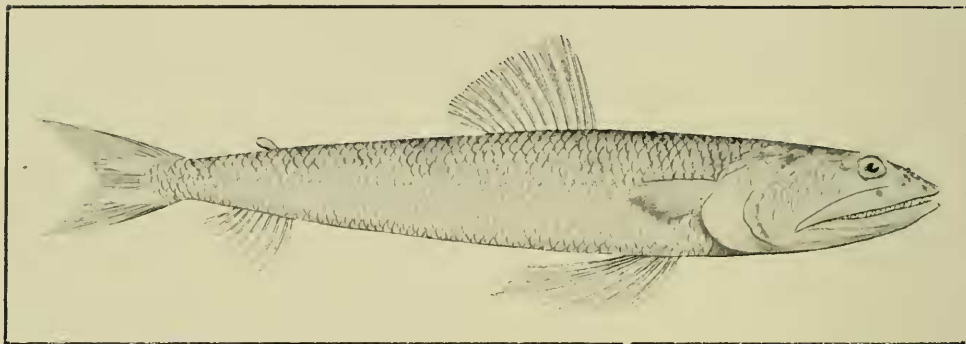


Fig. 1.—*SYNODUS HOULTI* sp. nov. Holotype, 203 mm. long.

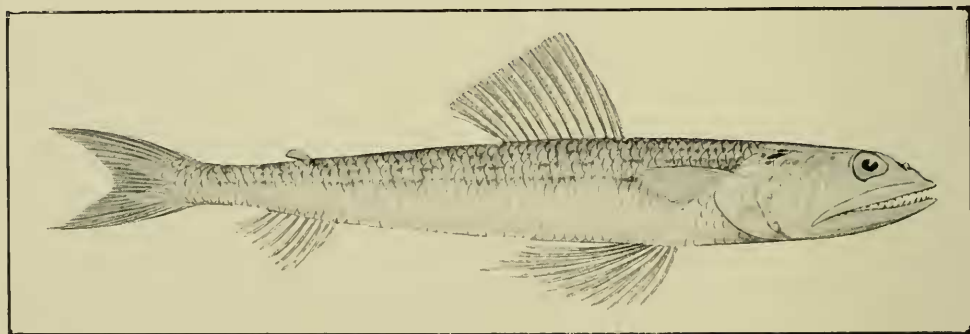


Fig. 2.—*SYNODUS SIMILIS* sp. nov. Holotype, 185 mm. long.

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- gg. Atlantic Ocean species *synodus and atlanticus*.
- ff. L. lat. 68.
- i.* 10 anal rays; light-coloured with dark cross-bars *dermatogenys*.
- ii.* 8 anal rays; black with dark cross-bars *lacertinus*.
- ee. $3\frac{1}{2}$ scales between lateral line and dorsal fin.
- j.* 11 dorsal and 10 anal rays: snout slightly longer than broad; eye about $4\frac{1}{2}$ in the head *kaianus*.
- jj.* 13 dorsal and 8-9 anal rays.
- k.* Snout as broad as long; dorsal and caudal fins spotted, gill-membranes plain *indicus*.
- kk.* Snout broader than long; dorsal and caudal fins plain, upper part of gill-membranes with black blotches *similis*.
- cc. Anal fin with 11 or more rays *acutus, altipinnis, saurus, scituliceps, jenkinsi, fatens, and lucioiceps*.

The characters of *S. erythraeus* Klunzinger, from the Red Sea, are unknown to me.

SYNODUS JAPONICUS Houttuyn.

Cobitis japonica Houttuyn. Verh. Holl. Mat. Harlem., xx, 1782, p. 450.

Salmo variegatus Lacepède, Hist. Nat. Poiss., v, 1803, p. 157.

Saurus varius Günther, Brit. Mus. Cat. Fish., v, 1864, p. 395—part.

Synodus japonicus Jordan & Herre, Proc. U.S. Nat. Mus., xxxii, 1907, p. 517—synonymy.

A single specimen 131 mm. long, from Murray Island, Torres Strait, enables me to add this species to the Australian list. Nine others from Lord Howe Island and one from Amboyna agree in having the postoral portion of the cheek naked as in *S. dermatogenys* Fowler, but have eight or nine anal rays instead of ten as in that species. The two species are evidently very similar.

SYNODUS HOULTI sp. nov.

(Plate VIII, fig. 1.)

Br. 15; D. 12; A. 9; P. 13; V. 8; C. 19; L. lat. 59; L. tr. $4\frac{1}{2}/7$. Depth of the body before the ventrals less than its breadth, and 6.5 in the length to the hypural joint; head 3.3 in the same. Eye 1.8 in the snout, and 8.1 in the head; interorbital width 1.1 in the eye. Third dorsal ray 2.4, and pectoral fin 3 in the head.

Body subcylindrical, a little broader than deep, tapering backwards. Snout pointed, its width at the base distinctly greater than its length; jaws subequal. Nostrils close together, nearer the eye than the end of the snout; the opening of each is quite small, and the first has a posterior cutaneous lobule. Eye with very narrow adipose membranes anteriorly and posteriorly. Interorbital space concave. Cranium with some radiating ridges behind the eye and across the occiput. Mouth oblique, the premaxilla extending about two eye-diameters beyond the eye. Preopercular margin rounded, with a membranous border bearing mucigerous canals. Operculum unarmed, with a membranous border.

A single row of fixed, spaced, and compressed teeth along the outer edge of each premaxillary bone is covered by the lips; directly inside this row is another of longer, more numerous, and depressible teeth which are exposed when the mouth is closed. Mandibular teeth similar, in three rows, the outer row smallest and fixed, the other two depressible and the innermost largest. The symphyses of both jaws are toothless, but there are one or two larger teeth on each side of that of the mandible. A long band of depressible teeth on each palatine bone, arranged in four rows; the innermost teeth are largest, and they increase in size forwards, and are enlarged anteriorly. Tongue covered with large depressible teeth anteriorly, and a band of smaller ones posteriorly.

Body covered with cycloid scales, which have broad membranaceous borders. There are about sixteen rows between the occiput and the dorsal fin. Lateral line straight from the shoulder to the caudal peduncle; its scales are not raised, and are scarcely differentiated from the others. Five or six rows of scales on the cheeks, and a few on the upper portion of the operculum. Some rather elongate scales are present both above and below the base of the pectoral and above that of the ventral; an enlarged pinnate scale on the base of each caudal lobe.

Origin of dorsal fin slightly nearer the adipose dorsal than the tip of the snout: the third and longest ray just reaches the base of the last when adpressed; the two anterior rays are simple, and the last is double. Adipose dorsal finlet inserted above the middle of the anal. All the anal rays are simple, and the last is double. Pectoral fin short, not nearly reaching the vertical of the first dorsal ray. Ventrals inserted about midway between the verticals of the pectoral and dorsal origins; the inner and outer rays are simple and the others are bifid; the sixth ray is longest, and reaches about half its distance from the anal origin, and to the vertical of the last dorsal ray. Caudal forked.

Colour-markings.—Greyish on the back, the sides and lower surfaces white. Some very ill-defined cross-bars on the back, the most prominent of which is at the base of the tail, and some darker markings above the lateral line. Upper surface of the head with vermiculating grey lines which extend onto the lips near the end of the snout. Fins without markings.

Described and figured from the holotype, 203 mm. long from the snout to the end of the middle caudal rays.

Locality.—Near the Capricorn Group, Queensland, 25-30 fathoms.

This species differs from *S. similis* in having a much smaller eye, $4\frac{1}{2}$ instead of $3\frac{1}{2}$ supralateral scales, and small instead of large nostrils. It also lacks the dark marking on the upper portion of the gill-membranes. It is nearer *S. japonicus* Houttuyn, but has a much smaller eye and less rugose cranium, and the characteristic dark body markings and spots on the fins of that species are wanting in *S. houlti*.

SYNODUS SIMILIS sp. nov.

(Plate VIII, fig. 2.)

Br. 15; D. 13; A. 9; P. 13; V. 8; C. 19; L. lat. 58; L. tr. $3\frac{1}{2}$ /6. Depth of the body before the ventrals slightly less than its breadth, and about one-seventh of the length to the hypural joint; head 3.5 in the same. Eye 1.2 in the snout, and 5.1 in the head; interorbital width 1.3 in the eye. Third dorsal ray 1.8, third anal ray 3.1, and pectoral fin 2.1 in the head.

Body subcylindrical, a little broader than deep. Snout pointed, its width at the base distinctly greater than its length; jaws subequal. Nostrils close together, nearer the eye than the end of the snout; each has a rather large opening, and the first has a cutaneous lobe posteriorly. Eye with narrow adipose membranes anteriorly and posteriorly. Interorbital space a little concave. Cranium with some radiating ridges behind the eye and across the occiput. Mouth oblique, premaxilla extending about two-thirds of an eye-diameter beyond the eye. Preopercular margin rounded, without a free edge, with numerous mucigerous canals extending from it onto the operculum; operculum unarmed, with a broad membranaceous border.

A single row of fixed, spaced, and compressed teeth along the outer edge of each premaxillary bone is covered by the lips; directly inside this row is another of more numerous, longer, and depressible teeth which are exposed when the mouth is closed. Mandibular teeth similar, in three rows, the outer row smallest and fixed, the other two depressible and the innermost largest. The symphyses of both jaws are toothless, but there are a few enlarged teeth on each side of that of the mandible. A long band of depressible teeth on each palatine arranged in four rows; the innermost teeth are largest and they increase in size forwards and are enlarged anteriorly. Lingual teeth depressible in about five rows anteriorly, the outermost of which are largest; these are followed by a band of small teeth.

Body covered with cycloid scales which have broad membranaceous borders. There are about fifteen between the occiput and the dorsal fin. Lateral line straight from the shoulder to the caudal peduncle; its scales are not keeled, and scarcely differentiated from the others. About five transverse rows of cycloid scales on the cheek, and two on the upper portion of the operculum. A few rather elongate scales both above and below the base of the pectoral fin, and above that of the ventral; an enlarged pennate scale on the base of each caudal lobe.

Origin of the dorsal fin almost midway between the end of the snout and the adipose dorsal; the third and longest ray reaches a little beyond the base of the last when adpressed. The two anterior dorsal rays are simple, and the last is double. Adipose dorsal inserted above the middle of the anal fin. The latter is short and composed of simple rays; the last is double. Pectoral fin short, not quite reaching the vertical of the first dorsal ray. Ventrals inserted between the verticals of the pectoral and dorsal origins; the inner and outer rays are

simple, and the others are bifid; the sixth ray is longest and reaches almost half its distance from the base of the last anal ray, and well beyond that of the dorsal. Caudal forked.

Colour-marking.—Greyish on the back, the sides and lower surface white. Ill-defined grey markings form indefinite cross-bars and about eight imperfect rings on the lateral line. Grey lines form narrow interrupted rows along each series of scales on the upper half. Head with grey spots on the opercles, and the gill-membranes are ornamented with two large black spots on each side above the operculum. Fins without markings.

Described and figured from the holotype, 185 mm. long from the snout to the end of the middle caudal rays.

This species is apparently very similar to *S. indicus* Day, but its vertical fins are without markings, and the gill-membranes are ornamented with a black blotch which is not present in the Indian species. According to Day's description the ventral fins of *S. indicus* are shorter than in *S. similis*, the snout is as long as broad instead of broader than long, and the adipose membranes around the eye of *S. similis* are said to be wanting in *S. indicus*. *S. similis* differs from *S. kaianus* Günther in the number of dorsal and anal fin-rays, and in the proportions of the snout.

Locality.—Near the Capricorn Group, Queensland, 25-30 fathoms.

FAMILY APOGONIDÆ.

APOGON BREVICAUDATUS Weber.

Apogon brevicaudatus Weber, Notes Leyden Museum, xxxi, 2, 1909, p. 158, and Siboga Rept., Fische, lvii, 1913, p. 232, pl. viii. fig. 3.

Amia berthæ Ogilby, Ann. Qld. Mus. x, 1911, p. 47, pl. v. fig. 1, and Mem. Qld. Mus. i, 1912, p. 50.

A fine example 112 mm. long, agrees in all details with Weber's figure of this species, its markings being even better defined than in his illustration. A comparison of it with a smaller example of *A. berthæ*, which was received by the Australian Museum from Mr. J. D. Ogilby, proves the two to be synonymous; the vertical bands shown in Ogilby's figure disappear with age.

Localities.—Capricorn Group, 25-30 fathoms; coll. Queensland State trawler.

Wide Bay, Queensland; Australian Museum, exch. J. D. Ogilby.

FAMILY POMACENTRIDÆ.

The following key to the genera of this family is submitted as tentative only. It is largely a compilation derived from various smaller keys published by Günther, Jordan and Evermann, and others.

a. Teeth fixed, extending along greater portion of free edge of each jaw.

b. Teeth conical or villiform, not compressed.

c. Preorbital with a strong spine directed backwards.

PREMNAS.

cc. Preorbital without a strong spine.

- d.* At least some of the opercles serrated.
- e.* All the opercles serrated AMPHIPRION.
- ee.* Only the preoperculum and sometimes the preorbital serrated.
- f.* 12-13 dorsal spines.
- g.* Less than 30 transverse series of scales DASYLLUS.
- gg.* More than 30 transverse series of scales LEPIDOZYGUS.
- ff.* 17 dorsal spines ACANTHOCHROMIS.
- dd.* None of the opercles serrated.
- h.* Lateral line not developed on the tail CHROMIS.
- hh.* Lateral line almost complete AZURINA.
- bb.* Teeth more or less compressed.
- i.* Lips greatly thickened, fimbriate, and curled back over the snout .. CHEILOPRION.
- ii.* Lips normal.
- j.* Preoperculum serrated.
- k.* Spinous portions of dorsal and anal scaly like the soft portions; suboperculum and interoperculum entire POMACENTRUS.
1. Teeth biserial, truncate; soft dorsal short, often elevated; caudal deeply forked Subg. POMACENTRUS.
2. Teeth rounded; preorbital notched; caudal lunate Subg. PSEUDOPOMACENTRUS.
3. Teeth uniserial; snout and lower jaw scaly; spinous dorsal with membrane incised and lobed Subg. PARAPOMACENTRUS.
4. Snout and lower jaw naked Subg. AMBLYPOMACENTRUS.
5. Snout scaly, lower jaw naked; teeth uniserial; membrane of spinous dorsal not notched Subg. EUPOMACENTRUS.
6. As above, but membrane of spinous dorsal deeply notched Subg. BRACHYPOMACENTRUS.
- kk.* Spinous portions of dorsal and anal naked; suboperculum and interoperculum serrated DAYA.
- jj.* Preoperculum smooth.
- l.* 30 or less transverse series of scales.
- m.* Suborbitals adnate to the cheeks.
- n.* Suborbitals completely covered by scales NEXILARIUS
- mm.* Suborbital scales not well formed NEXILOSUS.
- mm.* Suborbitals not adnate to the cheeks.
- o.* Teeth emarginate, in a single row GLYPHISODON.
1. Preorbital very narrow, snout rather acute; 12 anal rays Subg. GLYPHISODON.
2. Preorbital broad, snout blunt, 10 anal rays .. Subg. EUCHISTODUS.
3. Lower pharyngeals quadrate Subg. HEMIGLYPHIDODON.
4. Scales above lateral line in 1-2 rows .. Subg. AMBLYGLYPHIDODON.
- oo.* Teeth not emarginate.
- p.* Teeth in two rows CHRYSIPTERA.
- pp.* Teeth in one row HYPYPOPS.
- ll.* More than 30 transverse series of scales PARMA.
- aa.* Teeth uniserial, movable, those of lower jaw confined to front portion.
- q.* Vertical fins not elevated, caudal simply lunate AZURELLA.
- qq.* Vertical fins much elevated, caudal lobes falcate MICROSPATHODON.

GENUS DAYA Bleeker.

Daya Bleeker, Verh. Holl. Mij. Haarlem, 1877, p. 71 (*Pomacentrus jerdoni* Day). *Id.* Weber, Siboga Fische, lvii, 1913, p. 343.

This genus differs from *Pomacentrus* in having no scaly sheaths at the bases of the spinous dorsal and anal fins, and the membrane between the spines naked instead of scaly. The edges of the suboperculum and interoperculum are finely serrated like the preoperculum, and the suborbital bones are small and inconspicuous; operculum with two spines. The anterior teeth of each jaw are enlarged, and, though compressed, have more or less rounded points; the lateral teeth small. Snout and mandible naked. Caudal fin forked. Scales in about thirty rows. Membrane of spinous dorsal scarcely incised and without distinct lobes.

DAYA JERDONI Day.

(Plate IX, fig. 1.)

Pomacentrus jerdoni Day, Proc. Zool. Soc. Lond. 1873, p. 237; and Fish. India, 1877, p. 383, pl. lxxx, fig. 7.

Daya jerdoni Weber, Fische Siboga Exped., lvii, 1913, p. 344.

Pomacentrus doli Macleay, Proc. Linn. Soc. N.S. Wales vi, 1881, p. 65, pl. i, fig. 1.

D. xiii/13; A. ii/14; P. 18; V. i/5; C. 15; L. lat. 19; 30 scales between the origin of the lateral line and the hypural joint, 5 between the origin of the dorsal and the lateral line, and 10 more to the origin of the anal.

Depth before the ventrals 2.6 in the length to the hypural joint; head 3.5 in the same. Eye 3.4 in the head and a little longer than the snout, which is 4.2 in the head; interorbital width a little greater than the length of the eye, 3.1 in the head. Sixth dorsal spine 2.1 in the head, longer than the last, but much shorter than the ninth ray; pectoral 1.2 in the head.

Body longer than is usual in Pomacentrids, with the upper and lower profiles equally curved from the obtusely conical snout. Suborbital bones small and inconspicuous, the first wider than the others and hinged with the preorbital; free edge of the preorbital notched and feebly serrated. Hinder edge of the preoperculum serrated, as is that of the suboperculum, and the interoperculum also has a few serrations. Operculum armed with two flat spines, the lower of which is the larger. Each jaw with about six large flattened teeth in a row anteriorly, and a row of much smaller ones on each side; palate toothless. Nostril a simple opening on each side.

Scales ctenoid with narrow ciliated borders. They extend forward on the upper surface of the head to before the middle of the eye, and cover the whole head with the exception of the snout, lips, and mandible. There is an enlarged scale at the base of each ventral fin, and two others are present between those fins. Scales cover the bases of the pectoral fins, and extend up between the dorsal, anal, and caudal rays, but the spinous portions of the dorsal and anal are naked. Lateral line formed by a broad canal, with two or three pores opening on each scale; the scales of the median series on the caudal peduncle also bear minute pores.

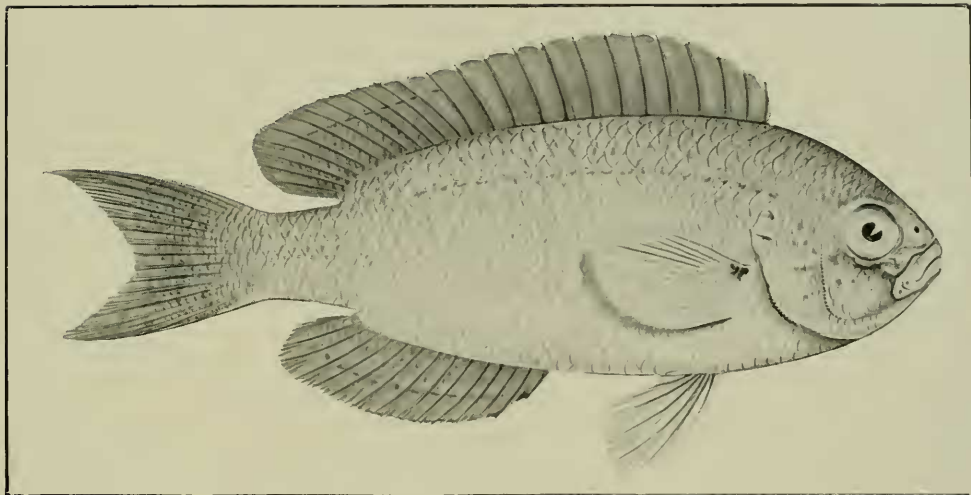


Fig. 1.—*DAYA JERDONI* Day. A specimen 108 mm. long.

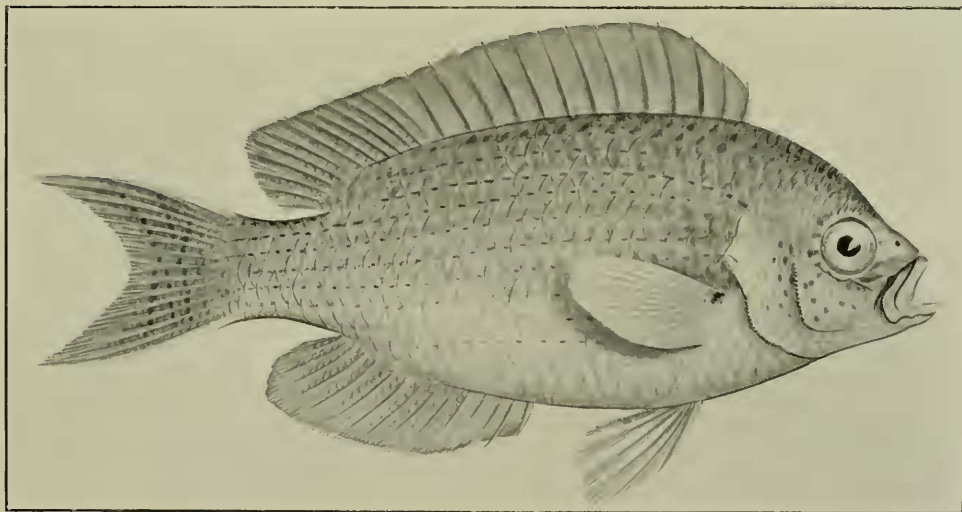


Fig. 2.—*DAYA JERDONI*, var. *FUSCA*, var. nov. Holotype of variety, 99 mm. long.

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Median dorsal spines highest, the others decreasing slightly in length backwards; the rays increase again to the ninth, which is longer than the longest spine. The margin of the dorsal fin is slightly sinuous between the spines, and obtusely pointed posteriorly. Anal similar in form to the soft dorsal. Pectoral rounded, the fifth upper ray longest. Ventrals rounded, without produced rays, and reaching backwards to the vent. Caudal forked.

Colour.—Yellow, with blue spots, the fins darker. The body is much lighter than the fins after preservation, and the scales have olivaceous markings which combine to form the pattern illustrated in the accompanying figure. Two dark stripes cross the preorbital, one extending under the eye, and the cheeks and opercles are marked with dark spots and short lines. A large blackish spot at the upper base of the pectoral. Vertical fins slate-coloured in formaline; the dorsal and anal have narrow white borders followed by a very narrow darker line, and there is a blackish spot between the anal spines; a dark horizontal line extends along the soft portion of each. Caudal with irregular rows of grey spots. Pectorals and ventrals whitish.

Described and figured from a specimen 108 mm. long, which was taken by the Queensland State trawler around the Capricorn Group, Queensland, in 25-30 fathoms. Two others taken with it exhibit some little variation in the degree of colour-marking on the fins, and one bears indications of blue spots on each scale; the extreme outer rays of the caudal fin may also be light-coloured.

Synonymy.—An examination of the two typical specimens of *Pomacentrus dolii* Macleay, in the Macleay Museum, proves them to be similar in all details to the example described above. They were found in a large *Dolium* shell in Port Jackson, and were doubtless mere stragglers southward from the warmer waters of Queensland.

DAYA JERDONI, var. FUSCA, var. nov.

(Plate IX, fig. 2.)

A series of twenty-one specimens, 59-104 mm. long, which were trawled by the F.I.V. "Endeavour" in Queensland waters, includes several specimens which cannot be separated from those described above; also others which differ somewhat in both form and colour, and others which are intermediate between the two. In a specimen 99 mm. long, which is figured on the accompanying plate, the depth at the ventrals is 2.4 in the length to the hypural joint. The body is brown like the vertical fins, and each scale bears a basal darker (blue) spot. The dark lines on the dorsal and anal are wanting in this specimen, but are indicated in another somewhat larger example. The outer rays of the caudal fin are whitish like the margins of the dorsal and anal.

Although the two forms illustrated differ in their general appearance, they are evidently specifically identical, since other specimens are intermediate between them, and can be as readily assigned to the one as the other.

Localities.—Twenty miles N.N.E. of Double Island Point, Queensland; 30 fathoms.

Thirteen miles S.E. of Cape Capricorn, Queensland; 13 fathoms.

Four to five miles S.E. of Bustard Head Light, Queensland; 11-16 fathoms.

Ten miles N.W. of Bustard Head Light, Queensland; 14-17 fathoms.

Three to seven miles N.W. of Hervey Bay fairway buoy, Queensland; 9-11 fathoms.

Twelve miles N.E. of Bowen, Queensland; 19-25 fathoms.

Port Jackson, New South Wales: types of *P. doli* Macleay.

GENUS GLYPHISODON Lacépède.

GLYPHISODON PALMERI Ogilby.

(Plate X, fig. 1.)

Glyphisodon palmeri Ogilby, Mem. Qld. Mus., ii, 1913, p. 87, pl. xxii, fig. 2.

As the original figure of this species is imperfect in several details, I have figured another specimen, 135 mm. long from the snout to the end of the middle caudal rays, which is well preserved though it has lost many of its scales. Fourteen specimens, 42-135 mm. long, show that the disposition of the transverse bands and the other characters of the species are very constant, and indicate that *G. palmeri* is a valid species.

Localities.—This species is evidently not uncommon on the Queensland Coast. I have speared it among coral on the surface of the reef at Masthead Island, while the Queensland State trawler has taken it in 25-30 fathoms near the Capricorn Group. It has also been taken in a hauling net on a beach at Cape Bedford and in a reef pool near-by on Two Isles.

Capricorn Group, surface to 30 fathoms. Caloundra. Cape Bedford. Two Isles, off Cape Bedford. Torres Strait. Sweers Island, Gulf of Carpentaria.

FAMILY SCORPÆNIDÆ.

GENUS PARACENTROPOGON Bleeker.

? *Hypodytes* Gistel, Naturg. des Theirreichs, viii, 1848. Genotype uncertain, *vide* Jordan, Gen. Fish., ii, 1919, p. 235.

Paracentropogon Bleeker, Versl. Akad. Amsterdam (2), ix, 1876, p. 297 (*Apistus longispinis*. Cuv. & Val.).

Daia Ogilby, Proc. Roy. Soc. Qld. xviii, 1903, p. 9 (*Centropogon indicus* Day).

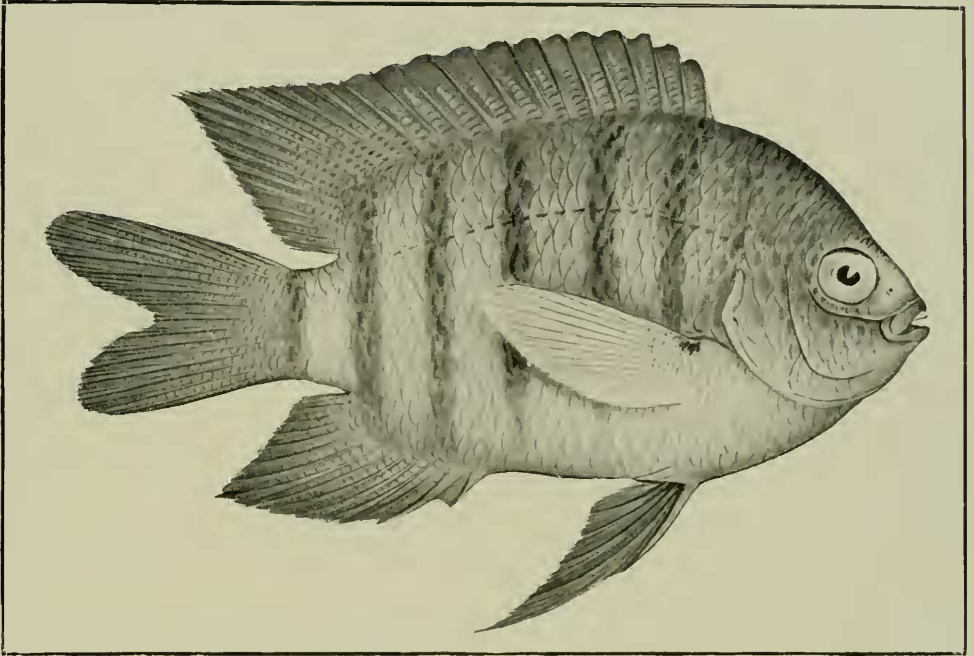


Fig. 1.—GLYPHISODON PALMERI Ogilby. A specimen 135 mm. long.

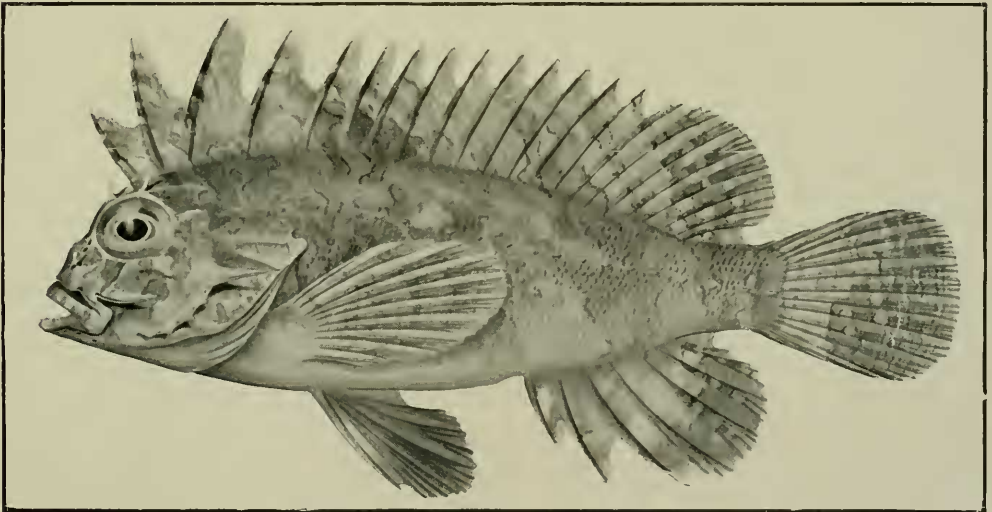


Fig. 2.—PARACENTROPOGON VESPA Ogilby. Holotype?, 87 mm. long.

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